

# Copepods from Space

## *Detecting Swarms of Calanus Finmarchicus in the Gulf of Maine*

**Catherine Mitchell**, Rebekah Shunmugapandi, Bigelow Laboratory  
Cait McCarry, University of Strathclyde  
David McKee, University of Strathclyde & University of Tromsø



The Research  
Council of Norway



Engineering and  
Physical Sciences  
Research Council

# SCIENTIFIC REPORTS

OPEN

## Remote sensing of zooplankton swarms

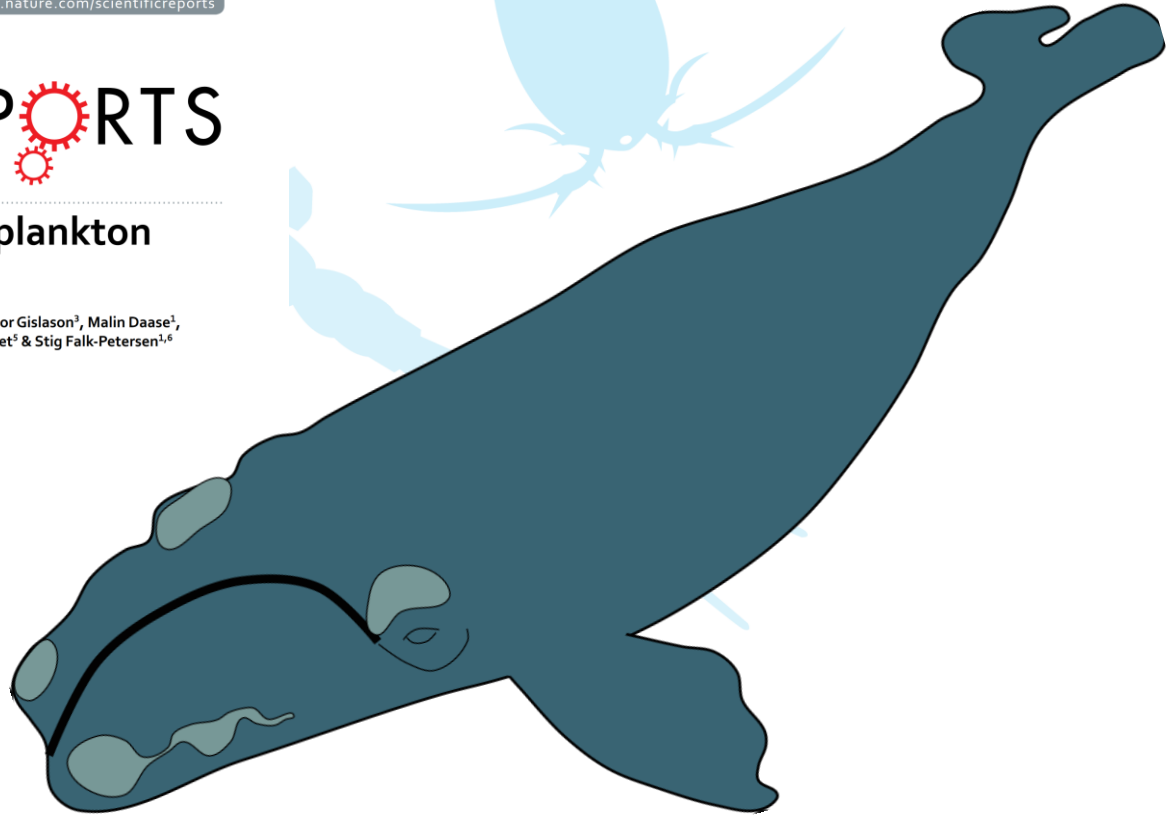
Sünnje L. Basedow<sup>1</sup>, David McKee<sup>2</sup>, Ina Lefering<sup>2</sup>, Astthor Gislason<sup>3</sup>, Malin Daase<sup>1</sup>, Emilia Trudnowska<sup>4</sup>, Einar Skarstad Egeland<sup>5</sup>, Marvin Choquet<sup>5</sup> & Stig Falk-Petersen<sup>1,6</sup>

# SCIENTIFIC REPORTS

OPEN

## Remote sensing of zooplankton swarms

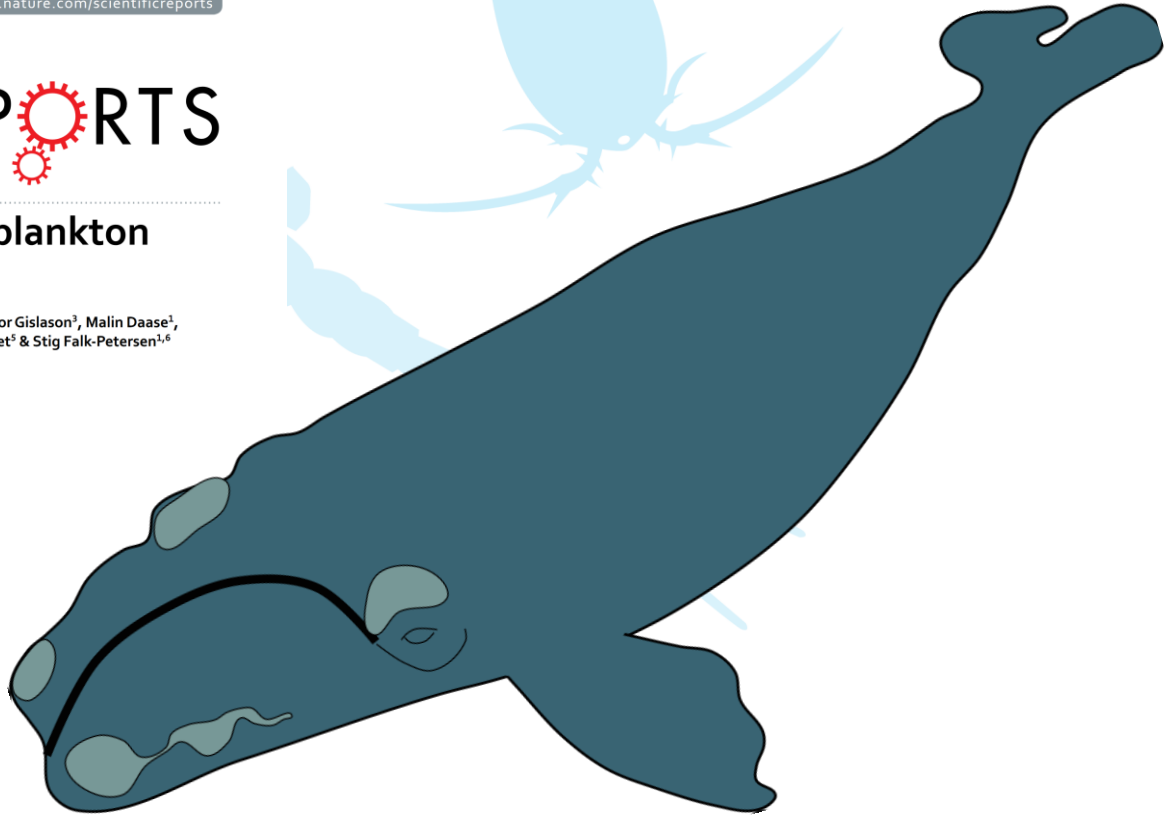
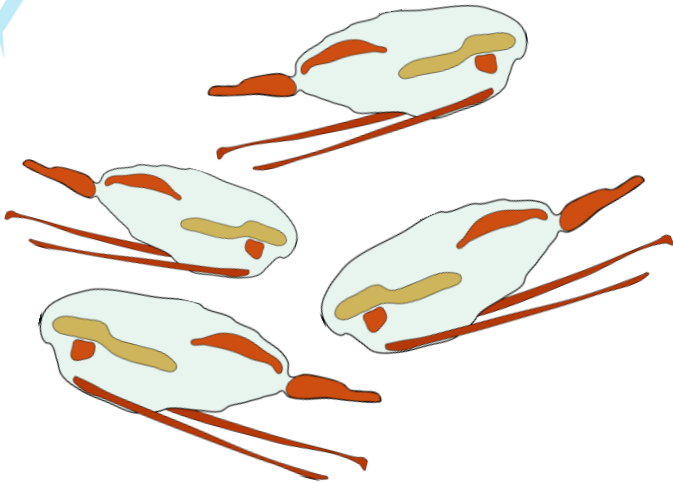
Sünnje L. Basedow<sup>1</sup>, David McKee<sup>2</sup>, Ina Lefering<sup>2</sup>, Astthor Gislason<sup>3</sup>, Malin Daase<sup>1</sup>, Emilia Trudnowska<sup>4</sup>, Einar Skarstad Egeland<sup>5</sup>, Marvin Choquet<sup>5</sup> & Stig Falk-Petersen<sup>1,6</sup>

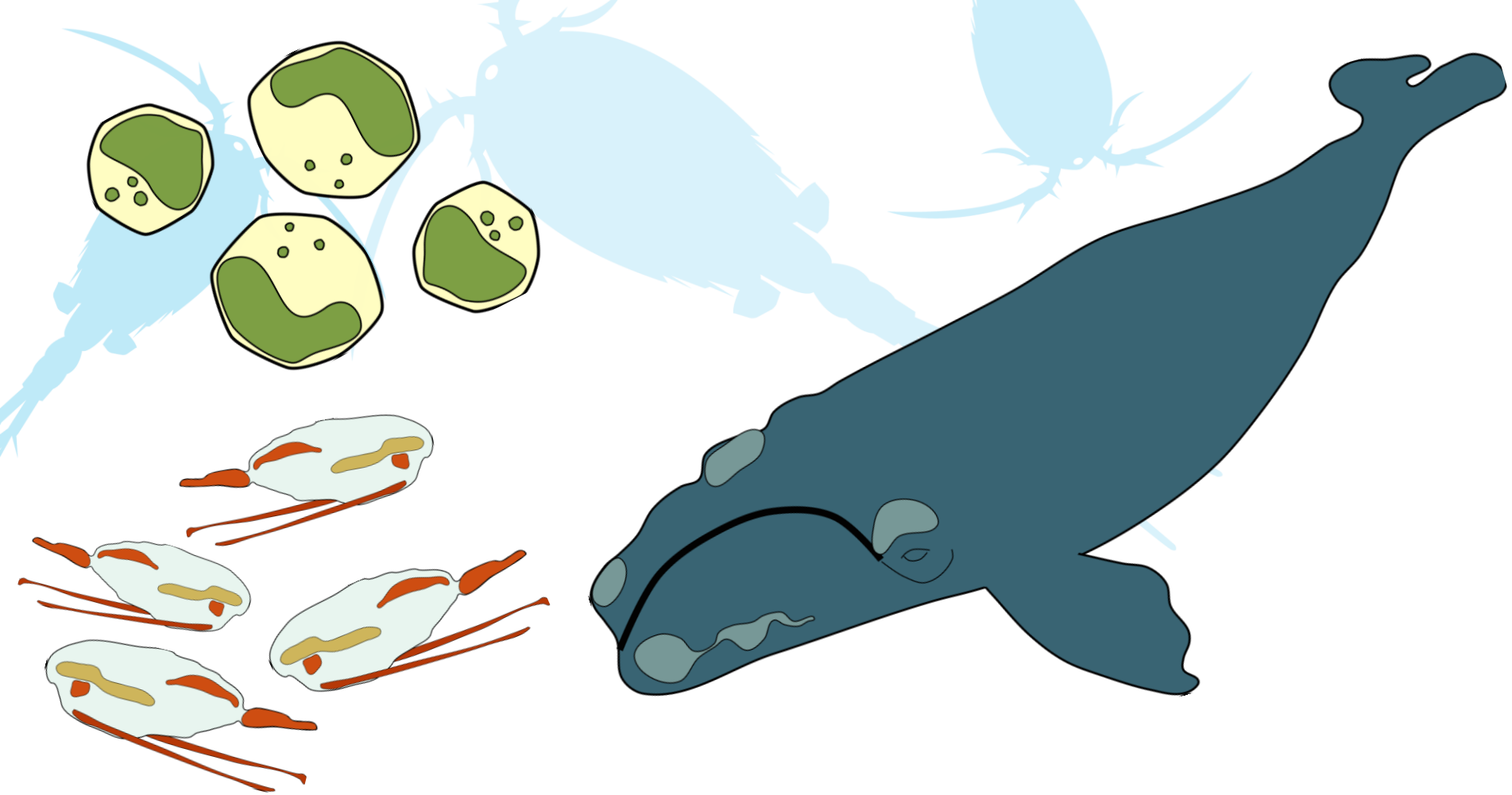


# SCIENTIFIC REPORTS

## OPEN Remote sensing of zooplankton swarms

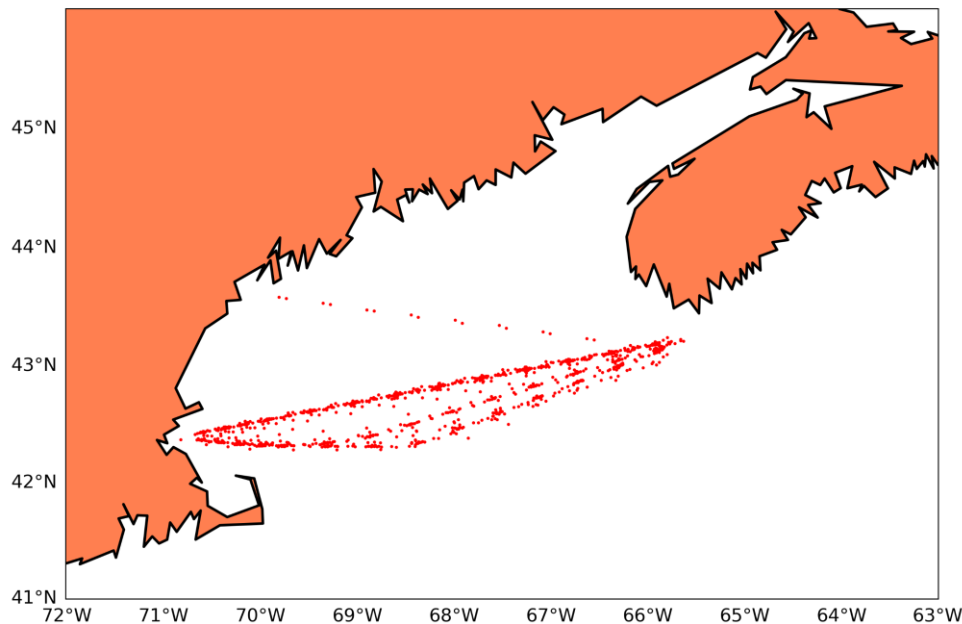
Sünnje L. Basedow<sup>1</sup>, David McKee<sup>2</sup>, Ina Lefering<sup>2</sup>, Astthor Gislason<sup>3</sup>, Malin Daase<sup>1</sup>, Emilia Trudnowska<sup>4</sup>, Einar Skarstad Egeland<sup>5</sup>, Marvin Choquet<sup>5</sup> & Stig Falk-Petersen<sup>1,6</sup>





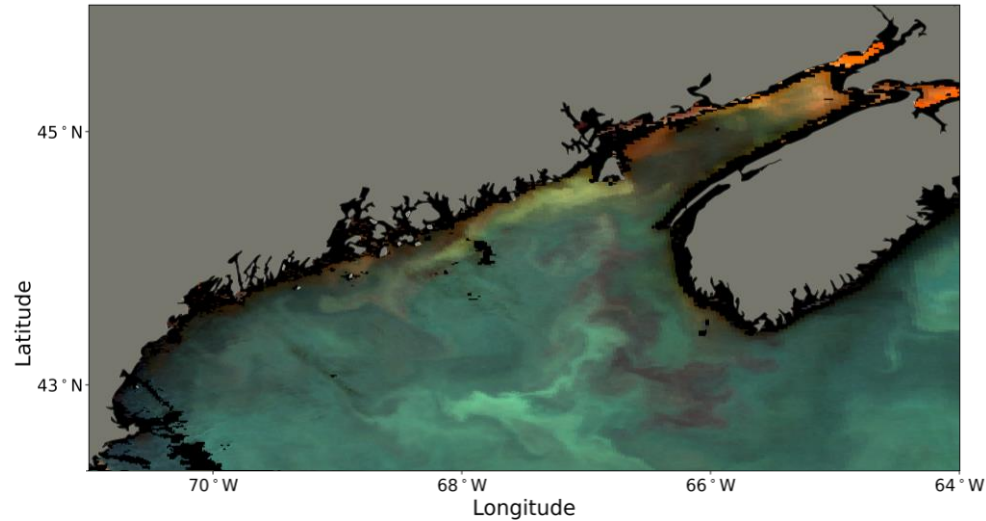
# Where are the *Calanus* swarms?

Continuous Plankton Recorder Data 2003 - 2013

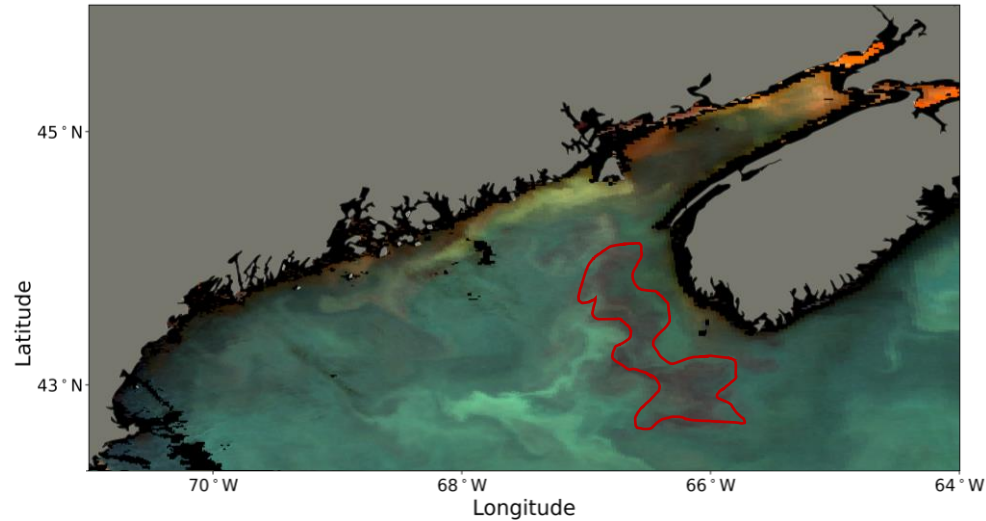


- Identify high abundance (top 1%) of *Calanus Finmarchicus* from Continuous Plankton Recorder (CPR) data
  - Find satellite overpasses (MODIS)
  - Generate eRGB images
- ↳ 9 potential patches of *Calanus Finmarchicus*

# June 17<sup>th</sup> 2009: MODIS

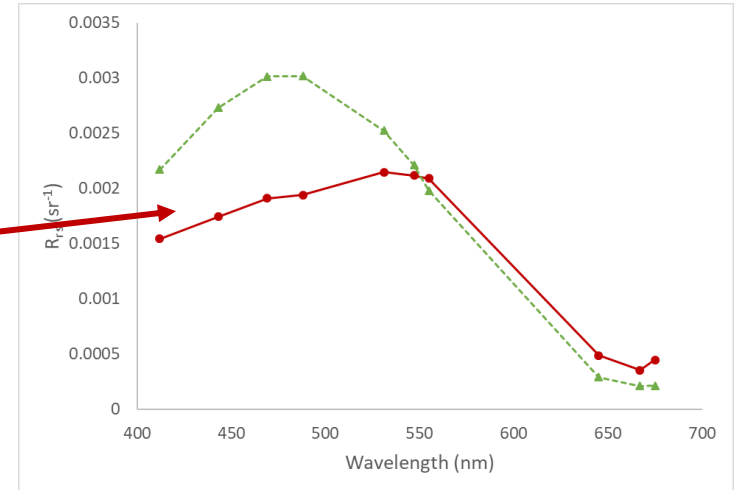
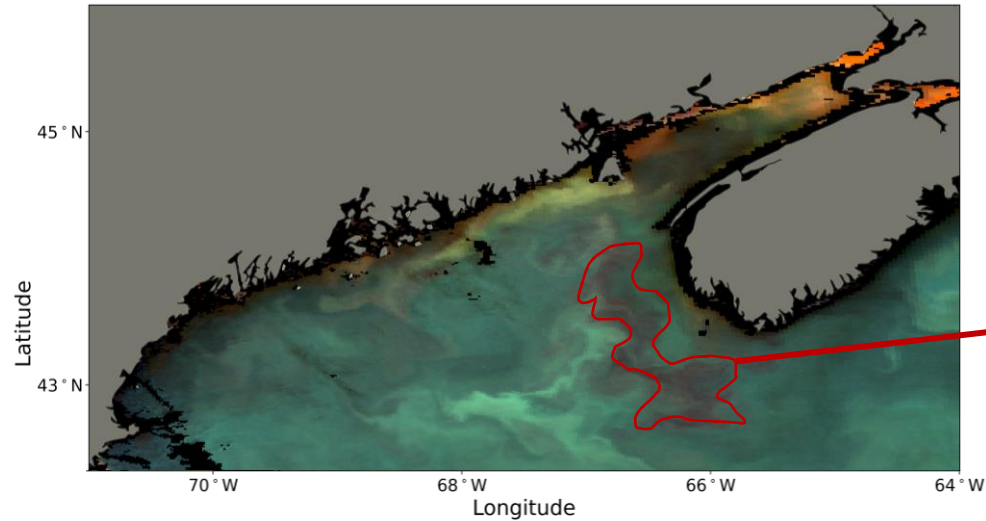


# June 17<sup>th</sup> 2009: MODIS

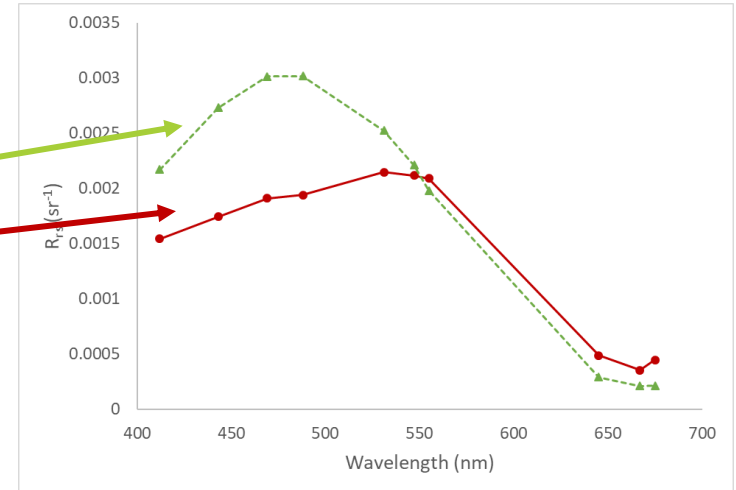
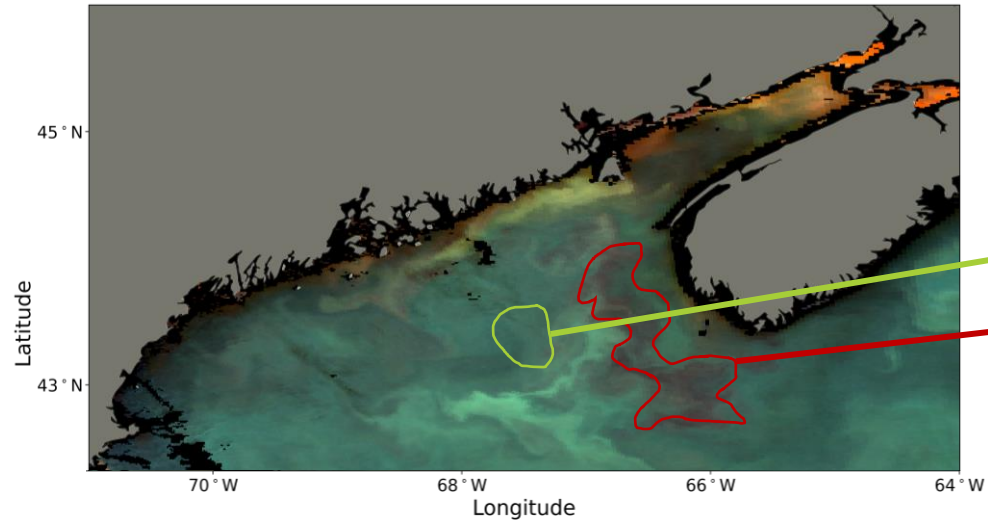




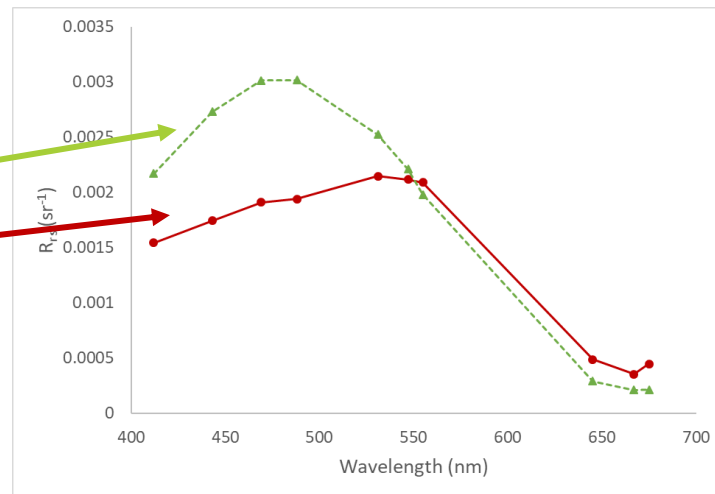
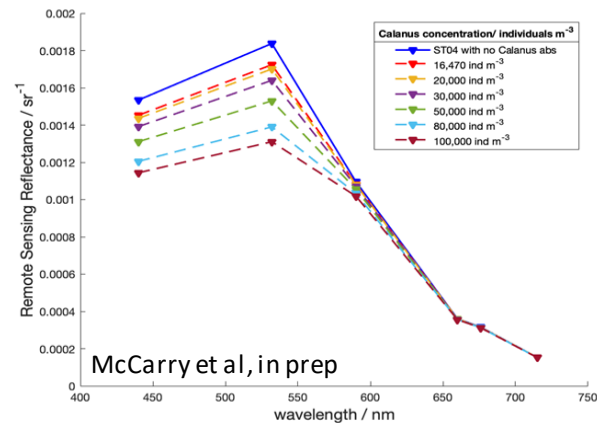
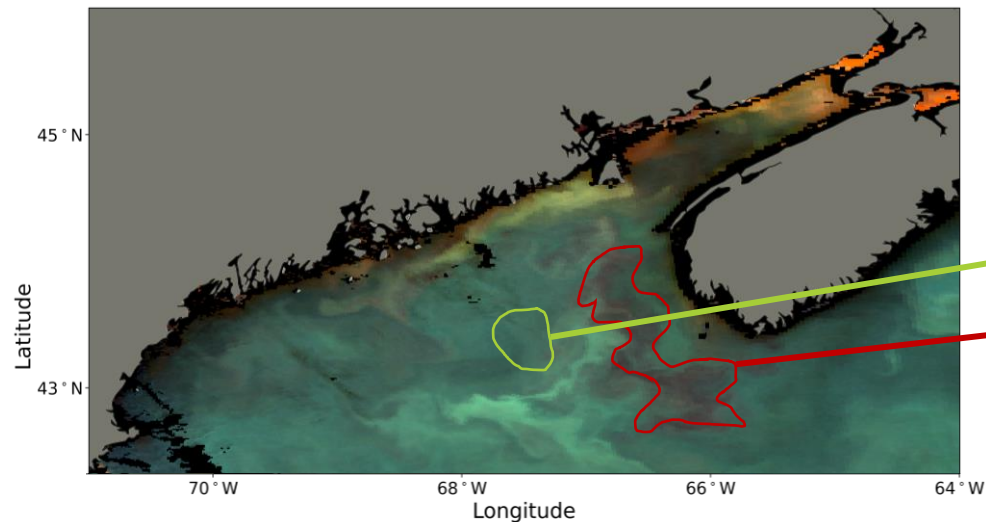
# June 17<sup>th</sup> 2009: MODIS



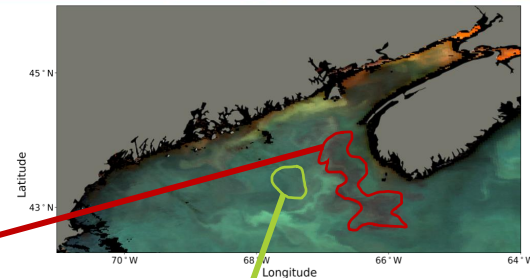
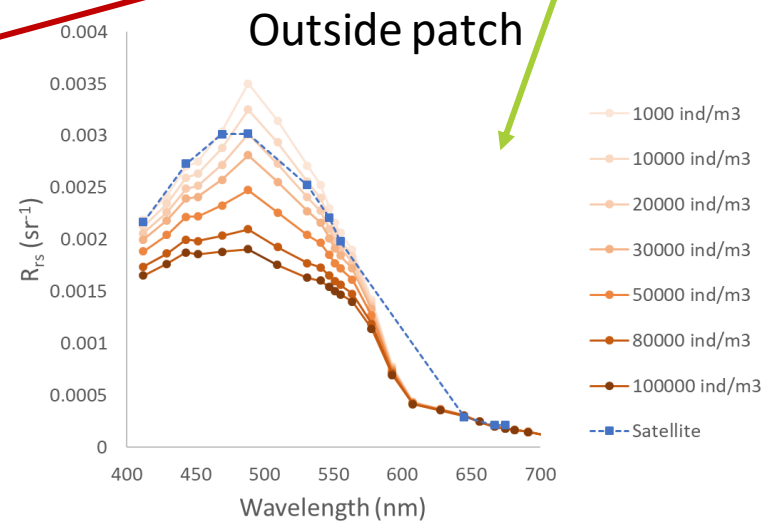
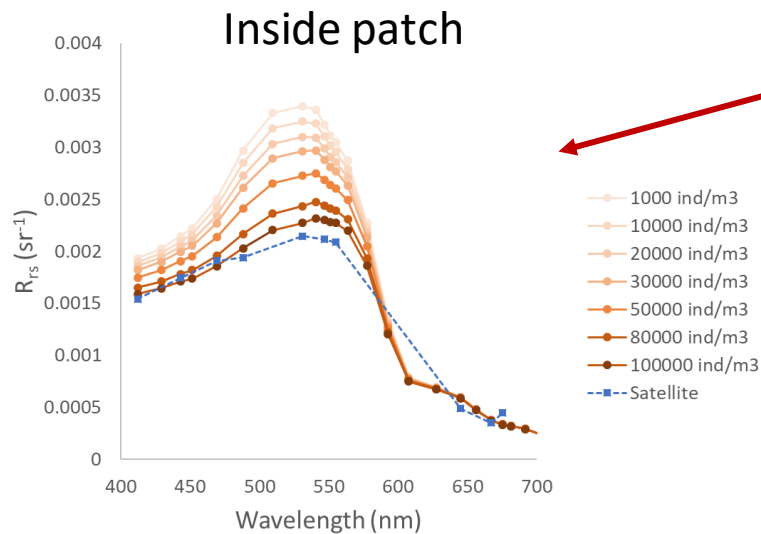
# June 17<sup>th</sup> 2009: MODIS



# June 17<sup>th</sup> 2009: MODIS



# Optical modeling



# Where we are going...

